Open Ocean Aquaculture: The Frontier at our Doorstep

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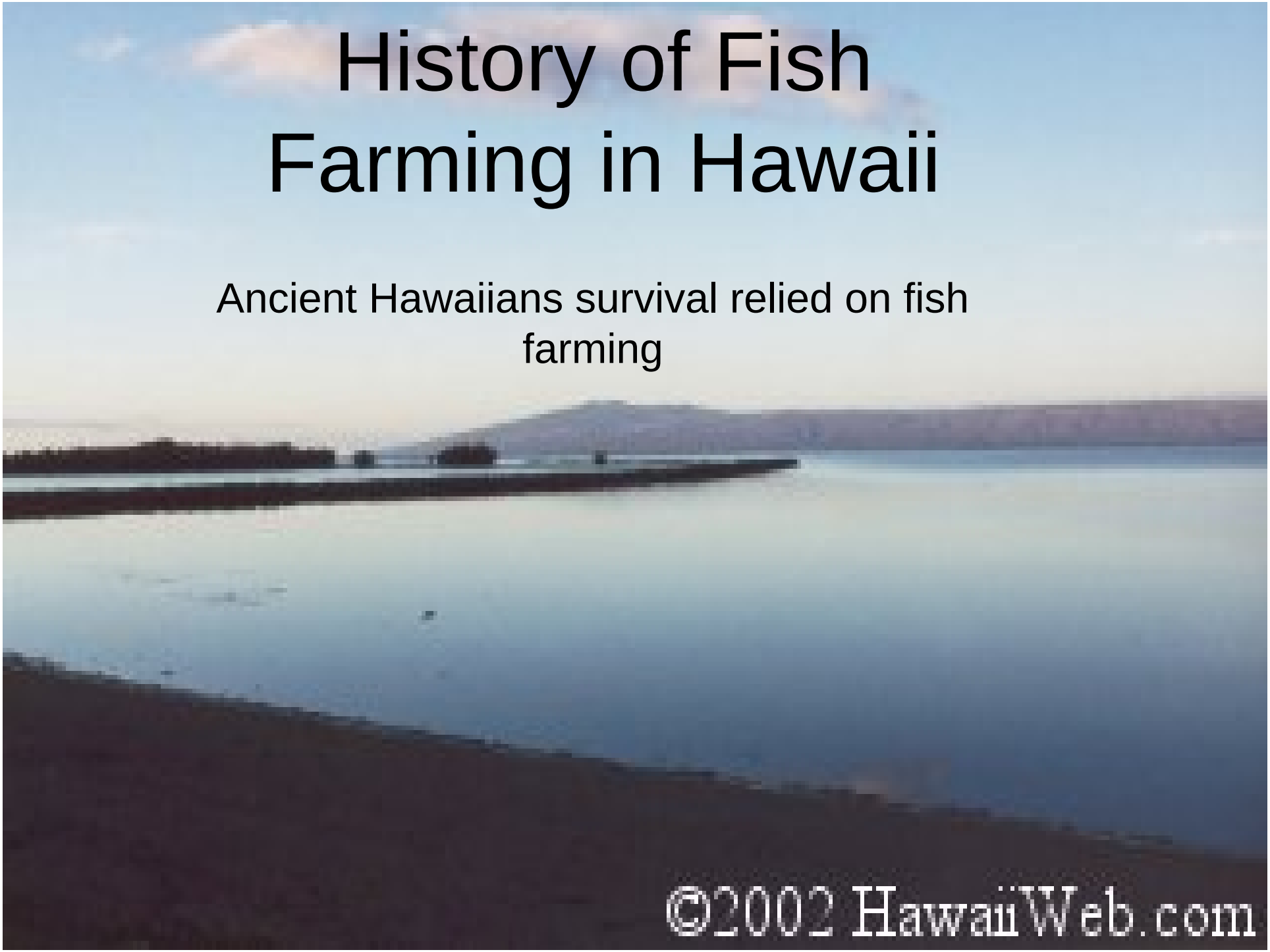
Presentation Outline

- History
- Why Open Ocean Fish Farming is important
- Where we are today
- Where we will be in a few years
- What the challenges are facing Aquaculture in the U.S.
- Recommendations
- Conclusion

History of Fish Farming in Hawaii

Ancient Hawaiians survival relied on fish farming




Old technology still
being used today
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Open Ocean Fish Farming utilizes both Ancient and Modern Technology

Why Open Ocean Fish Farming is Important

- Our fisheries have changed
- We must be able to meet the needs of our own communities
- It is not right to exploit other people's resources
- It is the best place to conduct this new industry, it is sustainable

Why Farm Fish?

- We as a nation have made the choice to farm our lands, we have chosen to farm everything thing else that we eat
- It is time to find ways to farm our seafood!
- We must strive to continually improve the management of our resources, and fish farming will be part of this management plan

Cates International Fish Farm

- First open ocean fish farm lease in the nation
- Two miles offshore
- Four cages
- We raise only native fish – Moi
- Up to 1.2 millions pounds production
- It is profitable
- **No grant money for start up!**

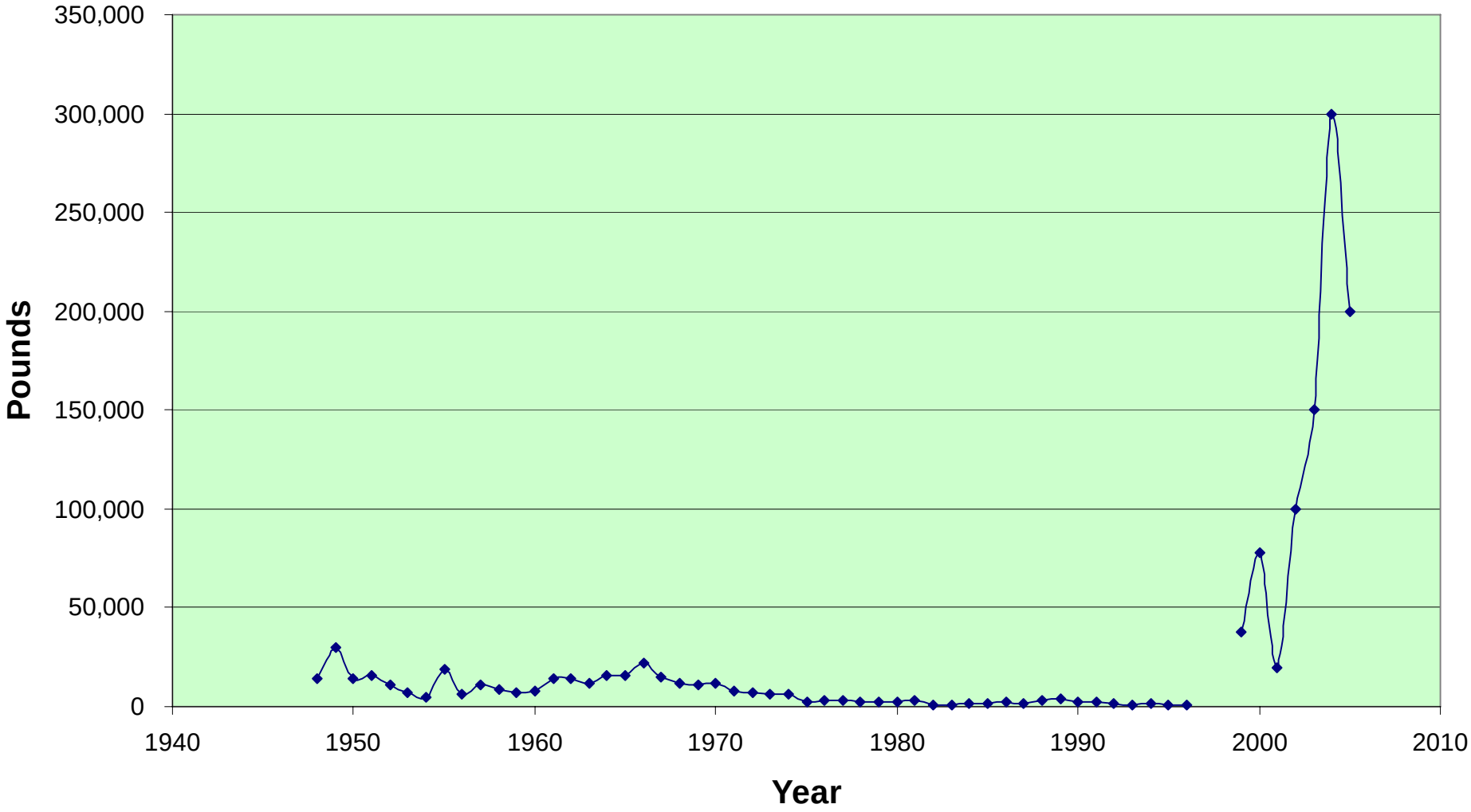
Current Status for Hawaii

- 10 Ocean Spar 3000 cages permitted under current leases
- Production per cage limits at about 150,000 pounds per crop (stocking density of 30 kg/m^3)
- Possible to go higher by perhaps a factor of two
- Thus, currently permitted industry could produce 2,100,000 to 2,600,000 pounds/yr

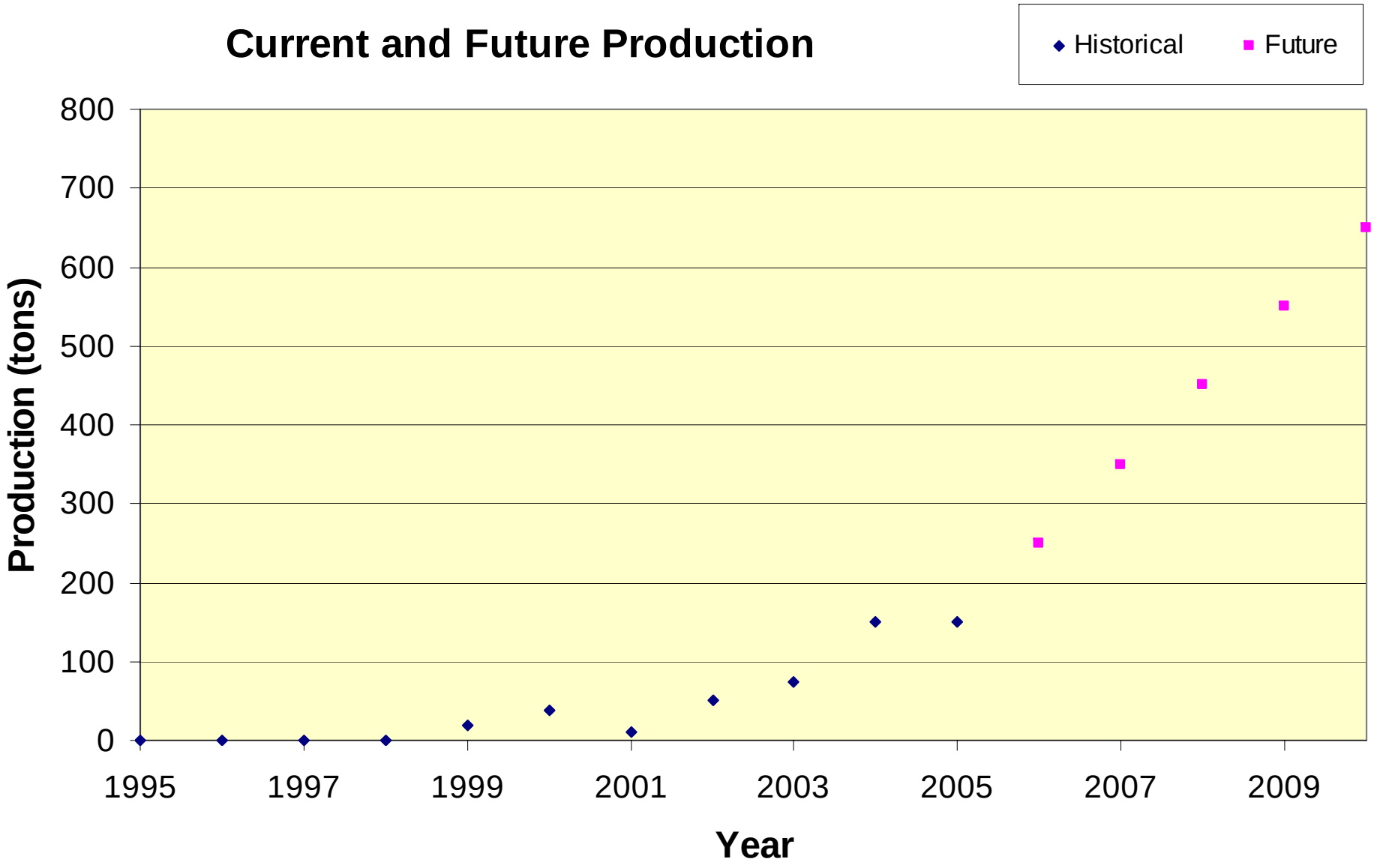
Future plans for Cates International

- August 2005 – Start construction of commercial fish hatchery
- 2006 Expand current site to eight cages
- 2006 Permit for new site with eight cages
- This will increase our production from 1.2 million pounds to approximately 4 million pounds per year

Moi Production History



The More Distant Future



Open Ocean Fish Farms in other areas of the U.S.

- Two farms in Hawaii, more in the permit process
- One farm in Puerto Rico

Open Ocean Aquaculture is a Reality

- Due to the success and failures of the salmon fish farming
- Depleted wild stocks, and increased consumer demand for seafood
- Can be conducted in an environmentally sound manner
- And is profitable

Challenges for open ocean fish farming

- Creating a new industry with no impact
  - It is impossible to do, everything has an impact!
- Finding the right place to locate farms
  - It is not appropriate for every community
- Educating the public about our industry

Challenges (cont.)

- Attracting the right investment
- Fish hatcheries!
- Species development
- Research money? Where is it?
- Community support

Recommendations

- Environmental Issues
  - Open ocean Aquaculture is an agricultural activity in the sea
    - Necessarily has a set of waste discharges
    - Must recognize that this consequence is similar to that for agriculture
    - Natural ecosystem uses aquaculture waste as food
- Technology improvements
    - Automated Feeders
    - Automated cage cleaners
    - Effective monitoring methods and protocols
- Urgently need more species to cultivate
- Need larger systems further from shore
- Commitment by State and National regulators that aquaculture is needed and necessary activity
- Money for Research and Development
- Researchers and Industry must work together, and utilize $ wisely

In Conclusion

- The time has come for us to find new ways to produce seafood in an environmentally sustainable manner
- We can no longer just rely on the wild stocks with the increasing demand
- We cannot exploit everyone else's resources

In Conclusion (cont.)

- Seafood should be available for everyone
- It should be our goal to make it affordable
- Open Ocean Fish Farming can help in achieving this goal